

Allergic reaction to long – term Benzathine penicillin injection for secondary prevention of acute rheumatic fever and recommendations for skin testing.

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Abstract

Background

Rheumatic Fever (RF) causes 25-40% of all cardio vascular disease in developing countries. Long term benzathine penicillin injection is being used for secondary prophylaxis of RF / RHD. Although allergic reaction to penicillin is rare skin testing is performed routinely before each and every penicillin injection delivery in most of the hospitals in Nepal.

Objectives

Objectives of this study was to evaluate safety of long term benzathine penicillin injection and establish recommendations for penicillin skin testing.

Methods

Data from the registers of National RF/RHD prevention and control programme from 32 hospitals of Nepal were collected and analyzed in a retrospective study.

Results

65 patients (1.4%) among 77300 injections of benzathine penicillin given to 4712 patients, had allergic reactions. 5 had anaphylaxis, an incidence of 0.1% (0.7/10000 injections), 60 had minor allergy, an incidence of 1.3%.

Conclusions

Life-threatening allergic reactions are very rare in patients on long-term intramuscular benzathine penicillin for secondary prevention of RF. With these rare complications, regular skin test before each and every benzathine penicillin injection delivery has no significant role. Nevertheless Skin testing is recommended before 1st injection and patients having different batch number and or brand name.

Key Words

Rheumatic Fever, Rheumatic Heart Disease, Inj. benzathine penicillin, Allergic reactions, Secondary prophylaxis

Introduction

Rheumatic Fever (RF) causes 25-40% of all cardio vascular disease in developing countries¹. Disability and death from Rheumatic Heart Disease (RHD) are mainly caused by recurrent attacks of RF². The efficacy of antibiotic prophylaxis to prevent recurrences of RF has been known for over 70 years^{3,4}. Because of the impact of this disease on public health, and the proven efficacy of antibiotic prophylaxis, the World Health Organization has helped to establish programmes for prevention of RF in developing countries⁵.

RF and RHD are common cardiac problem in Nepal with prevalence rate of 1.2/1000 children aged 5 – 16 years⁶. Long term benzathine penicillin injection is being used for secondary prophylaxis of RF / RHD.

Although allergic reaction to penicillin is rare skin testing is performed routinely before each and every penicillin injection delivery in most of the hospitals in Nepal. There are no published guidelines and recommendations for skin testing before penicillin injection delivery. Ministry of Health and Population of Nepal has been implementing a national programme on RF/RHD prevention and control with the technical support of Nepal heart foundation since last 4 years.

Objectives of this study was to evaluate safety of long term benzathine penicillin injection and establish recommendations for penicillin skin testing

Methods

Data from the registers of National RF/RHD prevention and control programme from 32 hospitals of Nepal were collected and analyzed in a retrospective study. This enrolled 4712 RF/RHD patients from June 2007 to Feb 2010 who received 3 weekly benzathine penicillin injection for Secondary prevention of RF.

Analysis of the patients with allergic reactions to inj. Benzathine penicillin was done.

Results

77300 injections of benzathine penicillin were delivered to 4712 patients during the study period. Among them 2172 (46.1%) were males and 2540 (53.9%) were females, 1728 (36.7%) were under 18 years and 2994 (63.3%) were above 18years. 665(14.1%) were RF and 4141 (85.9%) were RHD.

65 patients (1.4%) had allergic reactions. 5 had anaphylaxis, an incidence of 0.1% (0.7/10000 injections), 60 had minor allergy, an incidence of 1.3%. Among them 10 patients had minor allergy while receiving new batch of benzathine

penicillin (incidence of 0.2%) and 18 patients had minor allergy with new brand of injection penicillin (change from Penidure LA to Pencom) an incidence of 0.4%. There were 8 vasovagal reactions (0.16%) (Table 2). Among them 6 were with severe RHD. No death was reported. All allergic reactions occurred in age group >18 Years.

Table 1				
Total patients - 4712				
Sex:	Male	2172(46.1%)	Female	2540(53.9%)
Age:	< 18yrs	1728(36.7%)	>18yrs	2994(63.3%)
Diagnosis:	RF	665(14.1%)	RHD	4047(85.9%)

Table 2	
Total patients	: 4712
Reaction to Penicillin	: 65 (1.4%)
Major	: 5 (0.1%), (0.7/10000 injections)
Minor	: 60 (1.3%), (8.4/10000 injections)
Vaso-vagal syncope	: 8 (0.16%)

Discussion

The 1.4 % incidence of allergic reaction observed among patients with RF/RHD in our study differs from 3.2% incidence reported by International Rheumatic Fever Study Group^{7,8} and also incidence of 2.24% reported in patients who received short term treatment with benzathine penicillin for sexually transmitted disease⁹.

Anaphylaxis is the most worrying allergic reaction to penicillin. The reported incidence of serious reactions among patients without a history of rheumatic fever or of penicillin allergy ranges from 1-4/10000 treatment courses¹⁰. In our study the 4 episodes of anaphylaxis among 4712 RF/RHD patients who received 77300 injections represent a frequency of 0.7/10000 injections. This shows the frequency of serious allergic reactions to penicillin to be rare. The risk of such allergic reaction in age group under 12 years is reported very low¹¹.

Although skin tests for penicillin allergy are not recommended for patients without a history of such allergic reactions, it is possible that selective skin test with penicillin might further reduce the already low risk of a fatal reaction in patients with severe RHD. Patients with a positive skin test could receive an alternate prophylactic drug as Erythromycin.

It is necessary to note the batch number and brand name of the injection benzathine penicillin in the developing countries as ours because of the possible differences in quality of the drug with different manufacturers and batches.

Conclusions

Life-threatening allergic reactions are very rare in patients on long-term intramuscular benzathine penicillin for secondary prevention of RF. Minor reactions to penicillin may also occur with change in batch number and brand. It is not beneficial to perform skin test before each and every benzathine penicillin injection delivery.

Skin testing is recommended before 1st injection and patients having different batch number and or brand name. Consent taking is recommended with all patients before 1st benzathine penicillin injection delivery for legal safety of health personal delivering the injection.

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